

JCO9 Rec'd PCT/PTO 12 DEC 2001 10/018306 10/018306

JORDAN AND HAMBURG LLP
122 East 42nd Street,
New York, NY 10168
Tel: (212) 986-2340 Fax: (212) 953-7733
Customer No.: 000028107

Docket No.: F-7257

Filing Date: December 12, 2001

Certificate of Express Mailing Under 37 CFR 1.10	
"Express Mail" label number: EL 666 235 590 US	Date of Deposit: 12/12/01
I hereby certify that this correspondence is being deposited with the United States Postal Service "Express Mail Post Office to Addressee" service under 37 CFR 1.10 in an envelope addressed to ASSISTANT COMMISSIONER OF PATENTS, WASHINGTON, DC 20231 having the above "Express Mail" label number on the date of deposit indicated above.	
Madeline Gonzalez (Typed or printed name of person mailing paper or fee)	<i>Madeline Gonzalez</i> (Signature of person mailing paper or fee)

THE ASSISTANT COMMISSIONER FOR PATENTS

Washington, D. C. 20231

- ☐ ATTN: BOX PATENT APPLICATION
☐ ATTN: BOX DESIGN PATENT APPLICATION
☒ ATTN: BOX PCT
☐ ATTN: BOX PROVISIONAL PATENT APPLICATION
☒ THIS IS THE 35 U.S.C 371 NATIONAL STAGE OF PCT/EP00/06913 FILED

July 19, 2000

Sir:

Transmitted herewith for filing is the ☒ Utility ☐ Design ☒ nonprovisional ☐ provisional patent application of:

Inventor / Application Identifier: **Bernard KRONE, et al.**

☒ See Inventor Information Sheet attached

For: **HARVESTING EQUIPMENT**

- ☐ This is a new patent application.
☒ This is the 35 U.S.C. 371 National Stage Application of the above-identified PCT Application.
☐ This is a provisional patent application.
☐ This is a: ☐ Continuation Application
☐ Divisional Application
☐ Continuation-in-Part Application
of prior Application Serial No. ____
☐ Cancel in this application original claims ____ of the prior application before calculating the filing fee.
☐ Amend the specification by inserting before the first line the sentence:
-- This is a ☐ Continuation, ☐ Divisional, ☐ Continuation-in-part, of Application

☐ Incorporation By Reference. The entire disclosure of the prior application, from which a copy of the oath or declaration is supplied, is considered as being part of the disclosure of the accompanying application and is hereby incorporated by reference therein.


ENCLOSED ARE THE FOLLOWING:		
X	4	Sheets of drawings ([x] formal [] informal size A4).
X	11	Pages of specification including abstract and claims.
X	15	Total pages.
Combined Declaration and Power of Attorney		
		Newly executed
		Copy from prior application
		Inventors deleted; see attached statement
Sequence Listing		
		Computer Readable Copy
		Paper copy
		Statement verifying identity of above copies
X		Return Receipt Postcard
		Preliminary Amendment
		Assignment to:
		Assignment is of record in prior application Serial No. _.
		Assignment Recordation Form Cover Sheet.
		Charge \$40.00 to Deposit Account No. 10-1250 for recording Assignment.
		Information Disclosure Statement
		Information Disclosure Citation
		English translation
X		Application Data Sheet

CLAIMS FILED AND FILING FEE CALCULATION					
ITEM	—			Rate	Applied Fee
[] Base Fee - Non PCT	—			\$740	
[] Base Fee - PCT IPEA-US	—			\$710	
[] Base Fee - PCT ISA-US	—			\$740	
[] Base Fee - PCT not ISA or IPEA	—			\$1,040	
[X] Base Fee - PCT with EPO or JPO Search Report	—			\$890	\$890
[] Base Fee - Design	—			\$330	
[] Base Fee - Provisional	—			\$160	
Claim Fees	Number Filed	Base Number	Number Extra over Base	—	
Total Claims	1	20	0	\$18	\$0
Independent Claims	1	3	0	\$84	\$0
Multiple Dependent Claim Fee	—			\$280	\$0
[] Small Entity Status is Asserted	—				(\$0)
[X] Foreign Language Filing Fee	---			\$130	\$130
TOTAL FILING FEE					\$1,020

- [X] Please charge Deposit Account No. 10-1250 in the amount of the above TOTAL FILING FEE. A duplicate copy of this sheet is attached.
- [X] Please charge to Deposit Account No. 10-1250 any further fees due for filing or during prosecution of this application under: 37 CFR 1.16; 37 CFR 1.17; and 37 CFR 1.492.
- [X] Copy of the International Search Report (PCT/IPEA/409).
- [X] Copy of the cover page International Publication (WO 01/05219).
- [X] When all the requirements for a national stage application have been completed, applicant is notified (Form PT/DO/EO/903) of the acceptance of the application under 35 U.S.C. 371, including an itemized list of the items received. The itemized list includes an indication of whether a copy of the international search report and copies of the references cited therein are present in the national stage file. The examiner will consider the documents cited in the international search report, without any further action by the applicant under 37 CFR 1.97 and 1.98, when both the international search report and copies of the documents are indicated to be present in the national stage file. The examiner will note the consideration in the first Office action. There is no requirement that the examiners list the documents on a PTO-892 form. See Form Paragraphs 6.53, 6.54, and 6.55 (reproduced in MPEP § 609).

JORDAN AND HAMBURG LLP

By


Frank J. Jordan

Reg. No. 20,456

Attorney for Applicants

100312306 .072902
12 DEC 2001

INVENTOR INFORMATION SHEET

Docket Number: F-7257

Title: HARVESTING EQUIPMENT

Filing Date: 12/12/01

1. Full Name of Inventor Bernard KRONE	Family Name KRONE	First Given Name Bernard	Second Given Name
Citizenship Germany	Residence City Spelle	Residence State or Province	Residence Country Germany
Postal Address Bernard-Krone-Strasse 11	City Spelle	Province/State	Postal Code/Country 48480 Germany
2. Full Name of Inventor Wilhelm AHLER	Family Name AHLER	First Given Name Wilhelm	Second Given Name
Citizenship Germany	Residence City Stadtlohn	Residence State or Province	Residence Country Germany
Postal Address Alter Dyk 40	City Stadtlohn	Province/State	Postal Code/Country 48703 Germany
3. Full Name of Inventor Alfons KELLER	Family Name KELLER	First Given Name Alfons	Second Given Name
Citizenship Germany	Residence City Mettingen	Residence State or Province	Residence Country Germany
Postal Address Brookstrasse 134	City Mettingen	Province/State	Postal Code/Country 49497 Germany

#9

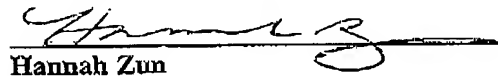
F-7257

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant : Bernard KRONE et al.
 Serial No. : 10/018,306
 Filed : December 12, 2001
 For : HARVESTING EQUIPMENT
 Group Art Unit : (Not yet known)
 Examiner : (Not yet known)

Express Mail mailing label No. EL 486 303 537 US
 Date of Deposit: July 29, 2002

I hereby certify that this paper or fee is being deposited with the United States Postal Service "Express Mail Post Office to Addressee" service under 37 CFR 1.10 on the date indicated above and is addressed to the Assistant Commissioner for Patents, Washington, D.C. 20231.


 Hannah Zun

Assistant Commissioner
 for Patents
 Washington, D.C. 20231

PRELIMINARY AMENDMENT (A)

Sir:

Preliminary to examination, please amend this application as follows:

F-7257

Serial No. 10/018,306

IN THE SPECIFICATION:

Please replace indicated paragraphs of the specification with replacement paragraphs presented indicated below. Appendix II is attached hereto having marked versions of said indicated paragraphs with amendments indicated by brackets and underlining.

Page 1: between the title and the 1st full paragraph, insert the following heading:

BACKGROUND OF THE INVENTION:

1st full paragraph, change to read as follows:

The invention relates to harvesting equipment for harvesting corn or similar stalk-like harvested crops.

Between the 2nd and 3rd full paragraphs, insert the following heading:

SUMMARY OF THE INVENTION:

F-7257

Serial No. 10/018,306

Page 3: 2nd full paragraph, change to read as follows:

Further advantages, distinguishing features arise out of an example of an object of the invention, which is illustrated in the accompanying drawings.

Between the 2nd and 3rd full paragraph, insert the following heading:

IN THE DRAWINGS:

5th full paragraph, change to read as follows:

Figure 3 shows a view similar to that of Figure 2, with a portion of a link chain, which is enlarged even further, and

Between the 6th and 7th full paragraph, insert the following heading:

DESCRIPTION OF THE PREFERRED EMBODIMENTS:

F-7257

Serial No. 10/018,306

IN THE CLAIMS:

Please amend the claims as shown re-written below with amendments effected therein. Appendix I is attached hereto having marked versions of said claims with amendments indicated by brackets and underlining.

6. (Amended) The harvesting equipment of one of the claims 3 or 4, wherein the function bodies (14; 15) have deflection plates (21; 22), which are essentially vertical in function and follow the extent (T) of the chain elements (14; 15) in the revolving direction (U1; U2).

7. (Amended) The harvesting equipment of one of the claims 3 or 4 wherein the chain elements (14; 15) are connected with one another over axle shafts (19; 20) at the front and rear ends in the revolving direction (U1; U2), and bodies of the axle (19a) of the axle shaft (19) are embraced in a sealing manner by the sleeve bodies (20a).

8. (Amended) The harvesting equipment of claim 6, wherein the deflection plates (21; 22) extend between the axle shafts (19; 20) essentially over the whole surface.

F-7257

Serial No. 10/018,306

9. (Amended) The harvesting equipment of claim 6, wherein a deflection plates (21) is disposed between the cutting plane (S) and a holding plane (H1) above the cutting plane (S) and a further deflection plate (22) is disposed between this holding plane (H1) and an upper holding plane (H2).

F-7257

Serial No. 10/018,306

REMARKS

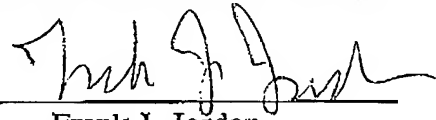
This Preliminary Amendment is being submitted to avoid having a multiple dependent claim depend on another multiple dependent claim. It is respectfully requested that the first Office Action be directed to the application as amended herein.

Please charge a multiple dependent fee of \$280.00 to Deposit Account No. 10-1250. If there are any additional charges, please to the same Deposit Account.

Respectfully submitted,

JORDAN AND HAMBURG LLP

By



Frank J. Jordan
Reg. No. 20,456
Attorney for Applicant

122 East 42nd Street
New York, New York 10168
(212) 986-2340

FJJ/cj
Enc.

Appendix I (Amended Claims with Amendments Indicated
Therein by Brackets and Underlining)

Appendix II (Amended Specification Paragraphs with
Amendments Indicated Therein by Brackets and Underlining)

F-7257

Serial No. 10/018,306

APPENDIX I

AMENDED CLAIMS WITH AMENDMENTS INDICATED THEREIN
BY BRACKETS AND UNDERLINING

6. (Amended) The harvesting equipment of one of the claims 3 [to 5] or 4, wherein the function bodies (14; 15) have deflection plates (21; 22), which are essentially vertical in function and follow the extent (T) of the chain elements (14; 15) in the revolving direction (U1; U2).

7. (Amended) The harvesting equipment of one of the claims 3 [to 6] or 4 wherein the chain elements (14; 15) are connected with one another over axle shafts (19; 20) at the front and rear ends in the revolving direction (U1; U2), and bodies of the axle (19a) of the axle shaft (19) are embraced in a sealing manner by the sleeve bodies (20a).

8. (Amended) The harvesting equipment of [one of the claims 6 or 7] claim 6, wherein the deflection plates (21; 22) extend between the axle shafts (19; 20) essentially over the whole surface.

F-7257

Serial No. 10/018,306

9. (Amended) The harvesting equipment of [one of the claims 6 to 8] claim 6, wherein a deflection plates (21) is disposed between the cutting plane (S) and a holding plane (H1) above the cutting plane (S) and a further deflection plate (22) is disposed between this holding plane (H1) and an upper holding plane (H2).

F-7257

Serial No. 10/018,306

APPENDIX II**AMENDED SPECIFICATION PARAGRAPHS WITH AMENDMENTS
INDICATED THEREIN BY BRACKETS AND UNDERLINING**

Page 1: between the title and the 1st full paragraph, insert the
following heading:

BACKGROUND OF THE INVENTION:

1st full paragraph, change to read as follows:

The invention relates to harvesting equipment for harvesting corn or similar
stalk-like harvested crops[, as defined in the introductory portion of claim1].

Between the 2nd and 3rd full paragraphs, insert the following
heading:

SUMMARY OF THE INVENTION:

Page 3: 2nd full paragraph, change to read as follows:

Further advantages, distinguishing features arise out of an example of an
object of the invention, which is illustrated in the [drawing, in which]
accompanying drawings.

F-7257

Serial No. 10/018,306

Between the 2nd and 3rd full paragraph, insert the following heading:

IN THE DRAWINGS:

5th full paragraph, change to read as follows:

Figure 3 shows a view similar to that of Figure 2, with a portion of a link chain, which is enlarged even further, and

Between the 6th and 7th full paragraph, insert the following heading:

DESCRIPTION OF THE PREFERRED EMBODIMENTS:

10018306 .072902

JC07 Rec'd PCT/PTO 14 FEB 2002

PCT

#5

F-7257

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant Bernard KRONE et al.
Serial No. 10/018,306
Filed December 12, 2001
For : HARVESTING EQUIPMENT
Group Art Unit : (Not yet known)
Examiner : (Not yet known)



Certificate of Mailing Under 37 CFR 1.8

I hereby certify that this correspondence is being deposited with the United States Postal Service as first class mail in an envelope addressed to ASSISTANT COMMISSIONER FOR PATENTS, WASHINGTON, DC 20231 on January 28, 2002.

Frank J. Jordan
(Name of Registered Representative)


(Signature and Date) 01/28/02

Assistant Commissioner for Patents
Washington, D.C. 20231


LETTER TO OFFICIAL DRAFTSMAN

Sir:

Submitted herewith is a set of formal drawings, Figs. 1 to 4, to take the place of the set of drawings with which the application was filed.

Respectfully submitted,

JORDAN AND HAMBURG LLP

By 
Frank J. Jordan
Reg. No. 20,456
Attorney for Applicants

122 East 42nd Street
New York, New York 10168
(212) 986-2340

FJJ/cj/Enc.

FIG. 1

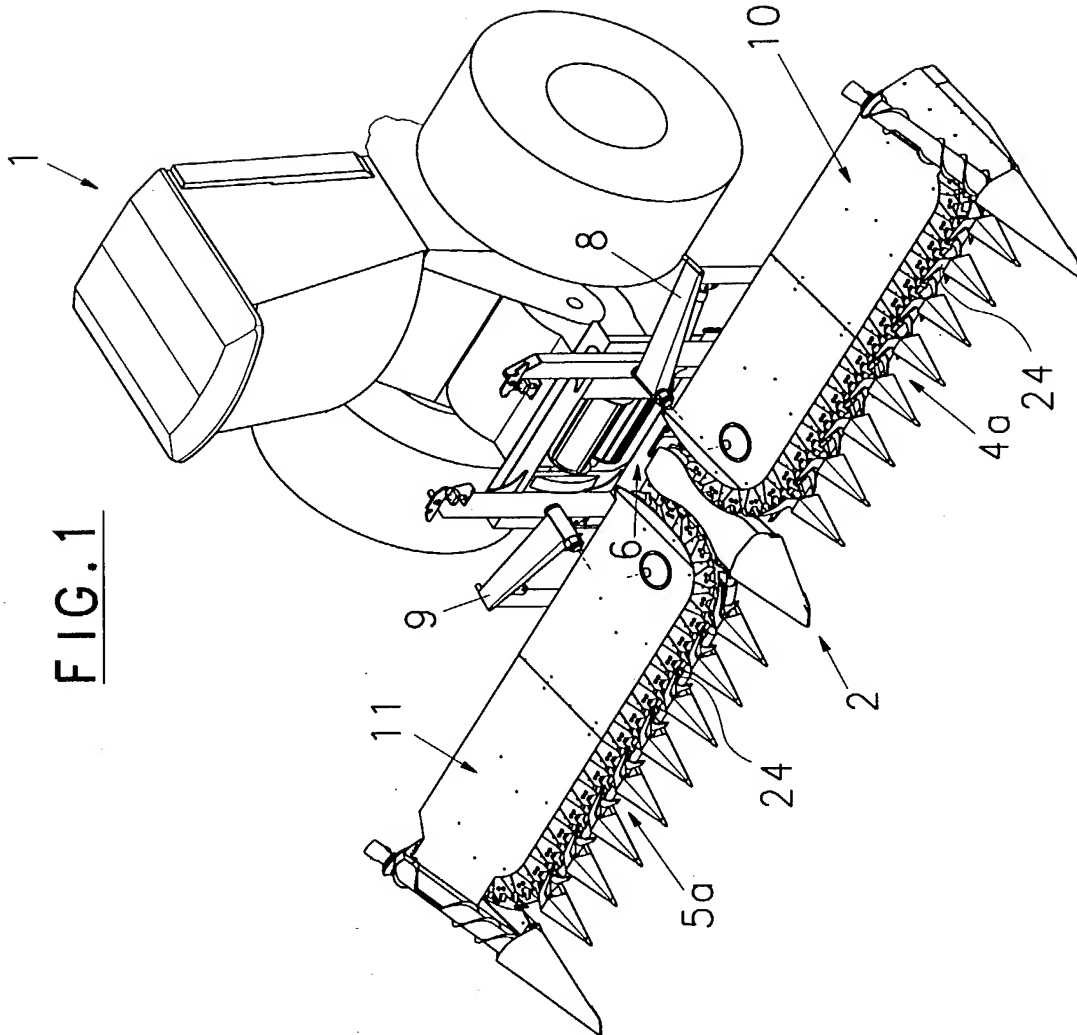
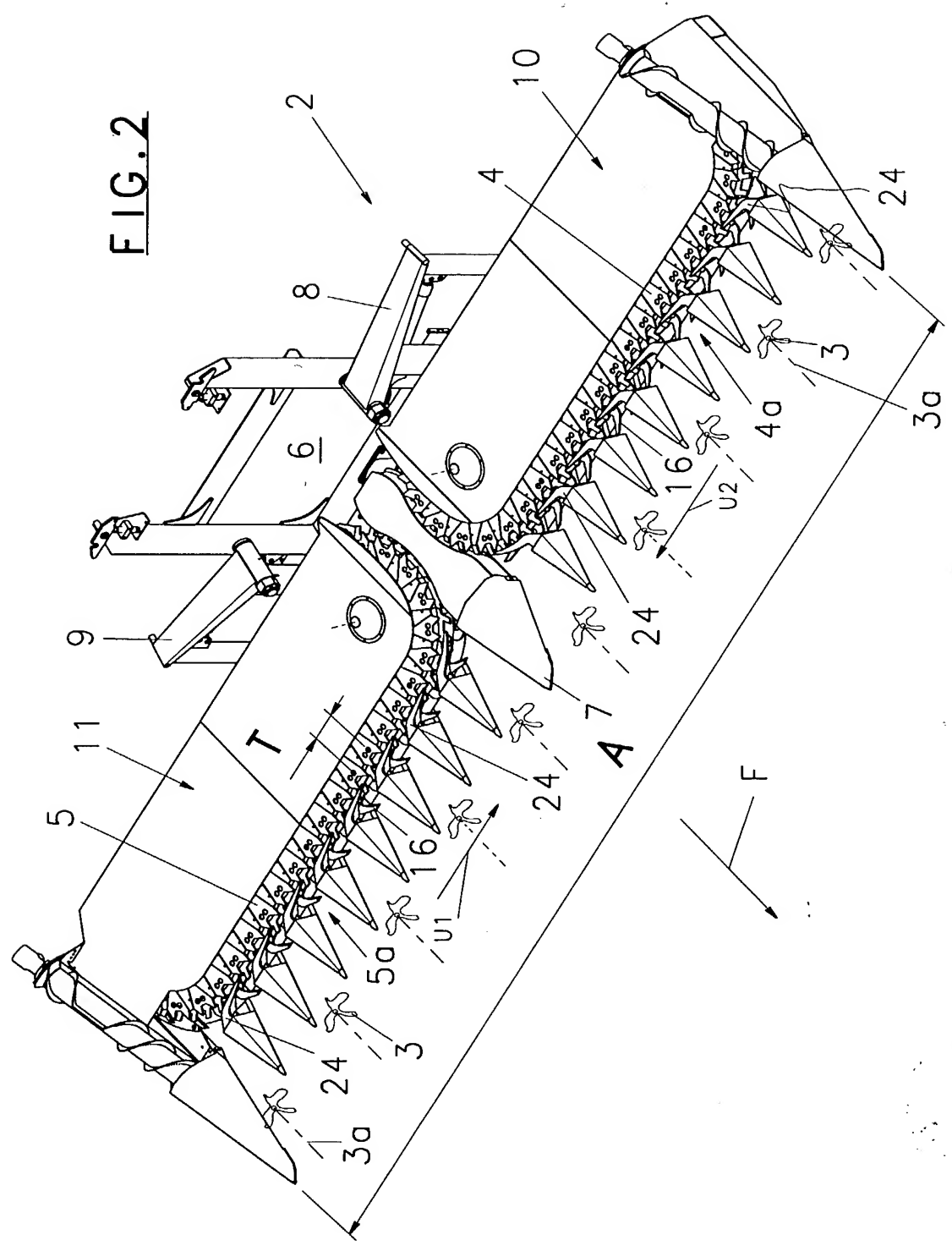
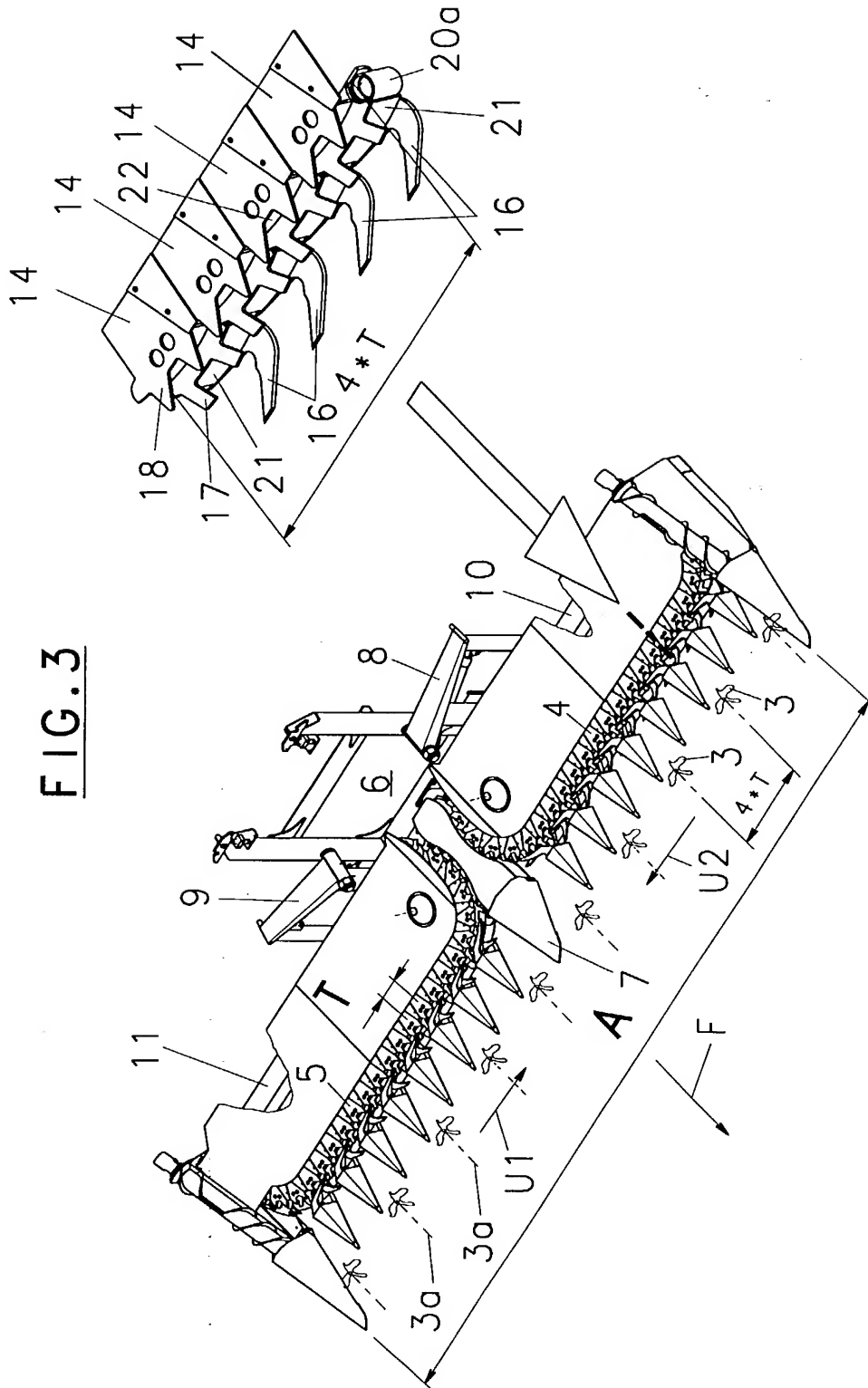


FIG. 2



3/4

FIG. 3



4pts

10018306 10/0/8306

10 Recd PCT/PTO 29 JUL 2002

F-7257

HARVESTING EQUIPMENT

The invention relates to harvesting equipment for harvesting corn or similar stalk-like harvested crops, as defined in the introductory portion of claim 1.

The DE 33 24 899 C2 discloses generic harvesting equipment, for which the harvested crops are cut off by cutting tools suspended in a flat link articulated chain and conveyed by holding means; which are furthermore suspended in the flat link articulated chain, to an inlet opening of a chopper or the like. Such conveying chains are subject to the danger of blockage by harvested crops engaging between the flat links. These chains are therefore subjected to considerable wear. Moreover, the maintenance and exchange of chain elements is made more difficult by the superimposed cutting and holding tools.

It is therefore an object of the invention to improve the ease of maintaining and handling such harvesting equipment. Pursuant to the invention, this objective is accomplished by harvesting equipment with the distinguishing features of claims 1 and 3, which can be realized individually or, particularly advantageously, in combination. With regard to further, advantageous developments, reference is made to claims 2 and 4 to 10.

With the harvesting equipment of claim 1, a simple modification to adapt to different working widths of the harvesting equipment is possible. To enlarge the working width, that is, to take hold of further adjacent rows of harvested products, the frame must be lengthened by the corresponding additional width, for example, by 75 cm for one row and, in conformity herewith, the link chain must be lengthened by the corresponding number of chain elements. At the same time, because the ratio of division is a whole number, it is ensured that the link chain always assumes any length, which is matched

accurately to the standard distance. By these means, overdimensioning or underdimensioning of the link chain is avoided. The standard distance may be measured between two or between three adjacent rows. A link chain, the elements of which, in their longitudinal extent, form a whole number divider of twice the distance between rows, therefore also fulfills the inventive function. If, for example, the standard distance between two rows corresponds to four times the extent of the chain elements, four intermediate elements, that is, a total of one supplementary piece with eight chain elements, must be inserted to broaden the harvesting equipment by the width of one row for the front and rear side of the revolving link chain. Whenever a chain is widened, it must also be lengthened by an amount corresponding to twice the desired widening of the tight side. Therefore, in the case of a chain element extension, which corresponds to whole number divider of twice the distance between rows, the widening by the distance between two rows is also always connected with adding a whole number of chain elements. Of course, this also applies to a widening by the distance between two rows.

If the chains elements are constructed as a uniform function body, which is provided directly with outwardly pointing holding means, the danger of blockage of the chain is reduced appreciably, since stalks or similar harvested crops cannot collect in the open spaces between the links of a chain or between these and suspensions of holding or cutting means. In addition, all elements of a chain are constructed uniformly. As a result, it becomes easier to widen or shorten the chain in accordance with claim 1. Additional, function elements do not have to be mounted.

Wear is particularly low if the chain elements, in their extent, have deflection plates, which prevent penetration of harvested crops in the spaces between the chain from the front side, which is moved against the harvested crops.

If the chain elements have several holding planes, and the upper holding plane, with the upper deflection plate, is offset inward with respect to the lower holding plane counter to the direction of travel, it is achieved that on the front tight side of the link chain, the cut off stalks are at an angle, so that these, inclined to the rear, are supplied to the inlet opening of the chopping device or the like and cannot fall out of the cutter bar towards the front.

Further advantages and distinguishing features arise out of an example of an object of the invention, which is illustrated in the drawing, in which

- Figure 1 shows a perspective view of inventive harvesting equipment with two link chains revolving in opposite directions in an attachment,
- Figure 2 shows a perspective view of the attachment
- Figure 3 shows a view similar to that of Figure 2, with a portion of a link chain, which is enlarged even further and
- Figure 4 shows a single chain element forming a uniform function body.

According to the example, the harvesting equipment 1 is constructed as a self-propelled vehicle and comprises an attachment 2, which takes up the harvested crop 3 over two link chains 4, 5 and supplies it to an inlet opening 6 of a chopper or a different device, which processes it further. The link chains 4, 5 run in the directions of the arrows U1 and U2 with their tight side 4a or 5a on a vertical, longitudinal center plane of the harvesting equipment. With that, a strip of harvested products can be harvested with a plurality of rows 3a of harvested products, which are disposed next to one another. The

harvesting equipment 1 can also be used equally well independently of rows. As a rule, however, corn fields are planted and harvested in rows. This offers the advantage that automatic steering can be used for the harvesting equipment 1, which identifies the position of the rows 3a and guides the harvesting equipment 1 correspondingly. Moreover, when corn is harvested, an accumulation of soil may be found in the area of the corn rows 3a, which, when driven over obliquely, leads to an erratic operation of the harvesting equipment 1. Because of the depressions between the rows 3a of harvested products, a constant height of cutting cannot be guaranteed when harvesting obliquely or transversely to these rows. The danger exists that the cutting and drawing-in equipment comes into contact with the ground and, as a result, takes up soil and dirt, drawing them into the equipment, or that the corn plants are cut off too high.

Between the link chains 4 and 5, a divider point 7 is provided, which brings about a rejection of central harvested products rows 3a to the lateral link chains 4 and 5, by means of which the harvested products 3, on the one hand, are cut off and, on the other, conveyed to the inlet opening 6 of the equipment for processing them further. The link chains 4 and 5 are held in frames 10, 11. The frames, as a whole, can be swiveled by means of supporting frames 8, 9 around axes of rotation, which extend parallel to the longitudinal axis of the vehicle. By these means, they are swiveled from the operating position, in which they are parallel and lie essentially horizontally next to one another, into an essentially vertical transporting position.

In the operating position, the total working width is labeled A. The link chains 4, 5 comprise chain elements 14, 15, which are constructed in each case as uniform function units and have cutting means 16 and/or holding means 17, 18. Since the chains 4 and 5 in each case convey towards the center, that is, have opposite conveying directions an U1 and U2, the chain elements 14 are correspondingly also mirror images of the chain

element 15. This is particularly important for the cutting means 16, which are constructed in the example as hook-shaped knives, the cutting taking place in the inner curvature of the hook. The holding means 17, 18 are also set at an angle, in order to make a laterally inclined transport of the severed stalks possible by these means. In the example, the chain elements 14, 15 have a cutting plane S, which is provided with cutting means 16, as well as a first holding plane H1, which is provided with holding means 17, and a second holding plane H2, which is provided with holding means 18. The chain elements 14, 15 are constructed uniformly in each case, that is, the holding and/or cutting means 16, 17, 18 are components of the chain elements 15 and not only connected detachably to these as attachable pieces.

The function bodies 14 and 15 adjoin one another directly. An axle shaft 19a, which can be embraced by a sleeve body 20a at the other end of the next function body 14, 15, is formed at one end of a function body 14, 15. By avoiding a space between the chain elements 14, 15, contamination and blockage of this joint region is prevented. The chain elements 14, 15 have deflection plates 21, 22, which follow their extent T in the revolving direction U1 and U2 and are essentially vertical or slightly inclined and which shield the function body 14, 15 towards the front, that is in the traveling direction F, in which the tight side 4a or 5a of the link chains 4 or 5 meets the harvested products 3. The deflection plates 21, 22 extend, on the one hand, between the sleeve body 20a and a further sleeve body 20a of an adjacent element 14, 15, which embraces the axle shaft 19a essentially over the whole surface, in order to be able to prevent reliably any penetration of harvested products also in the region of the axes of rotation 19, 20. The deflection plates 21, 22 can be constructed as metal plates and fixed exchangeably over a screw or plug-in connection. Welding also comes into consideration. Likewise, the chain elements 14, 15 can be constructed as uniform cast parts. The lower deflection plate 21 is disposed between the cutting plane S and the first holding plane H1 with the holding means 17 and

the upper deflection plate 22 is disposed between the holding plane H1 and the holding plane H2 with the holding means 18. Such a function body 15, as shown in Figure 4, forms a unit, which can be exchanged as a whole. The individual holding means 17, 18 or cutting means 16 do not have to be mounted as individual parts on standard chain elements. All chain elements 14 and 15 are similar. Due to the front side shielding by the deflection plates 21, 22 penetration of dirt or harvested products within the chain elements 14, 15 is also prevented, so that the service life of the chain elements 14, 15 is increased. In order to prevent penetration of dirt from above, overlapping metal sheets 23 are provided, which cover a gap between the chain elements in the region of the upper holding means 18. The upper deflection plate 22 is offset counter to the driving direction F inward towards the rear with respect to the lower deflection plate 21. Likewise, the edge region of the holding means 18 is offset with respect to the front edge region of the holding means 17. Even if the attachment 2 is placed at an angle to a plane of rotation of the link chains 4, 5 and this plane consequently rises against the driving direction F, severed stalks 3b - shown by broken lines in Figure 4 - can be transported at a greater or lesser slope to the perpendicular L at an angle α with the driving direction F, so that the stalks 3b are largely prevented from toppling out of the harvesting equipment 1 in the driving direction F.

Due to the construction of the chain elements as uniform function bodies, it is also ensured that they can be exchanged easily and the link chain 4, 5 can be lengthened or shortened simply. Particularly in combination with this uniform function body, but also as an individual measure, provisions are made pursuant to the invention that the extent T of an element 14 or 15 of the link chain 4, 5 is a whole number divider of a standard distance between rows 3a of harvested products 3 grown under standardized conditions. By these means, the harvesting equipment 1 can be manufactured without a major expense in accordance with customer specifications with regard to different working widths. Aside from lengthening or shortening a frame, it is only necessary to insert or take out the appropriate number of chain elements 14, 15 in accordance with the desired number of rows 3a, which

are to be harvested. The adaptation is then ensured automatically. If, for example, the width, which is to be harvested, is to be increased by one row, an extension of eight chain elements must be used, for example, for a standardized distance of two rows 3a, which corresponds to four times the extent of the chain elements T. These eight chain elements can be assembled previously already as a set and, in that case, only have to be inserted in the chain 4 or 5 as a whole. Correspondingly, after an extension by such a number of chain elements 14, 15, the group of chain elements can also be kept together as a unit. With that, the time, required for the modification, can be shortened and the cost of the installation reduced considerably. Only the two different chain elements 14 and 15 for the left or the right chain 4, 5 have to be kept in stock, so that the warehousing of spare parts is simplified. It is also possible to construct the frames 10, 11 telescopically, so that they can be used for different working widths.

The respective link chains 4, 5 are driven by way of reversing wheels in the edge end regions of the frames 10, 11. In the central region, the chains 4, 5 rest on glide planes, which are formed by the upper sides of counter cutting-edges and during the installation or modification, optionally have to be lengthened or shortened with the frame. However, more extensive guides are not required so that the installation or modification is simplified.

During operation, the stalks of harvested products 3, which are approached, are taken hold of by the angled cutting means 16 and severed between the latter and a counter cutting-edge, which is assigned to the frame 10 or 11. The counter cutting-edge may be stationary or comprise, for example, individual, rotating cutting disks, which are disposed adjacent to one another. The stalks, cut off in this manner, are held between the cutting means 17 and 18 in the inclined position that has been mentioned. Shackles 24 function as outer support at the front, so that the severed stalks are transported between the shackles 24 and the holding means 17, 18 in the revolving direction U1 or U2 to the central region of the

attachment 2, where they are supplied counter to the driving direction F between the edge regions of the central divider 7 and the holding means 17, 18 of the revolving chain elements 14, 15 to the inlet opening 6 of the equipment, in which they are processed further. The shackles 24 can be held elastically, in order to achieve flexible distances from the holding means 17, 18 therewith.

Claims

1. Harvesting equipment (1) for harvesting corn or similar stalk-like harvested products, the harvesting equipment (1) having at least one link chain (4; 5), which is provided with holding means for the cut-down harvested products (3), and has a tight side (4a; 5a), which can be moved, when in use, transversely to the driving direction (F) of the harvesting equipment (1), wherein the extent (T) of an element (14, 15) of the link chain (4; 5), measured in the revolving direction (U1; U2), essentially corresponds to a whole number divider of a standard distance between rows (3a) of harvested products (3) cultivated, in a standardized manner.

2. The harvesting equipment of claim 1, wherein the standardized distance between rows (4T) corresponds to four times the extent of chain elements (T) in the revolving direction (U1; U2).

3. Harvesting equipment (1) for corn or similar stalk-like harvested products, the harvesting equipment (1) comprising at least one link chain (4; 5), which is provided with holding means (17, 18) for the cut-off harvested products (3) and having a tight side (4a; 5a), which, in use, can be moved transversely to the driving direction (F) of the harvesting equipment (1), especially harvesting equipment of one of the claims 1 or 2, wherein the chain elements (14; 15), as uniform function bodies, are provided with outwardly pointing cutting means (16) and/or holding means (17; 18).

4. The harvesting equipment of claim 3 wherein the function bodies (14, 15) have three planes (S; H1, H2), of which a lower one (S) is constructed as a cutting plane and two planes (H1; H2), lying parallel above, are constructed as holding planes for the severed harvested products (3).

5. The harvesting equipment of one of the claims 3 or 4, wherein the function bodies (14; 15) adjoin one another directly.

6. The harvesting equipment of one of the claims 3 to 5, wherein the function bodies (14; 15) have deflection plates (21; 22), which are essentially vertical in function and follow the extent (T) of the chain elements (14; 15) in the revolving direction (U1; U2).

7. The harvesting equipment of one of the claims 3 to 6 wherein the chain elements (14; 15) are connected with one another over axle shafts (19; 20) at the front and rear ends in the revolving direction (U1; U2), and bodies of the axle (19a) of the axle shaft (19) are embraced in a sealing manner by the sleeve bodies (20a).

8. The harvesting equipment of one of the claims 6 or 7, wherein the deflection plates (21; 22) extend between the axle shafts (19; 20) essentially over the whole surface.

9. The harvesting equipment of one of the claims 6 to 8, wherein a deflection plates (21) is disposed between the cutting plane (S) and a holding plane (H1) above the cutting plane (S) and a further deflection plate (22) is disposed between this holding plane (H1) and an upper holding plane (H2).

10. The harvesting equipment of claim 9, wherein the upper deflection plate (22) is offset counter to the driving direction (F) relative to the lower one (21).

Abstract of the Disclosure

Harvesting equipment (1) for harvesting corn or similar stalk-like harvested products, the harvesting equipment (1) having at least one link chain (4; 5), which is provided with holding means for the cut-down harvested products (3), and has a tight side (4a; 5a) which can be moved, when in use, transversely to the driving direction (F) of the harvesting equipment (1), is constructed so that the extent (T) of an element (14, 15) of the link chain (4; 5), measured in the revolving direction (U1; U2), essentially corresponds to a whole number divider of a standard distance between rows (3a) of harvested products (3) cultivated, in a standardized manner.

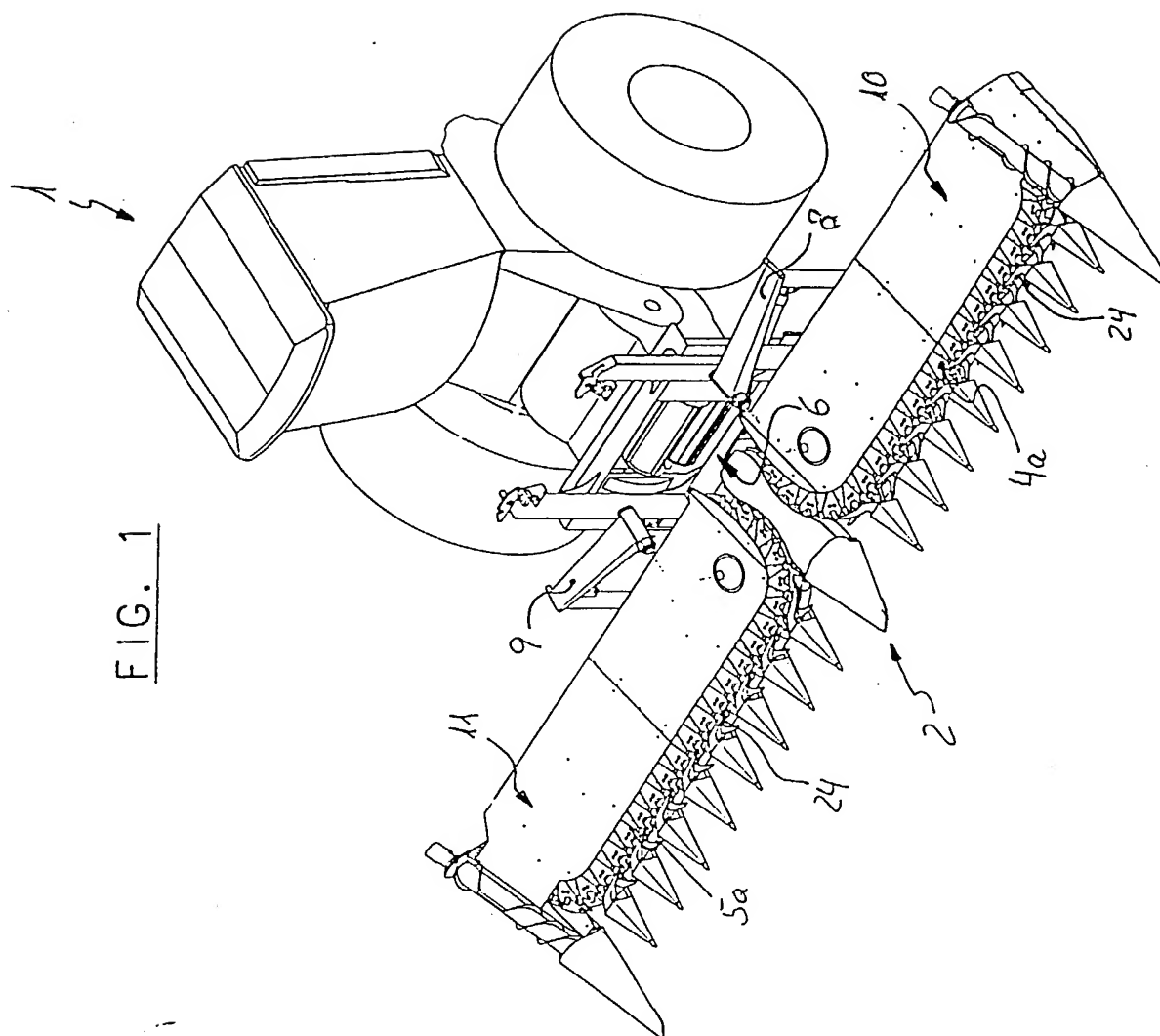
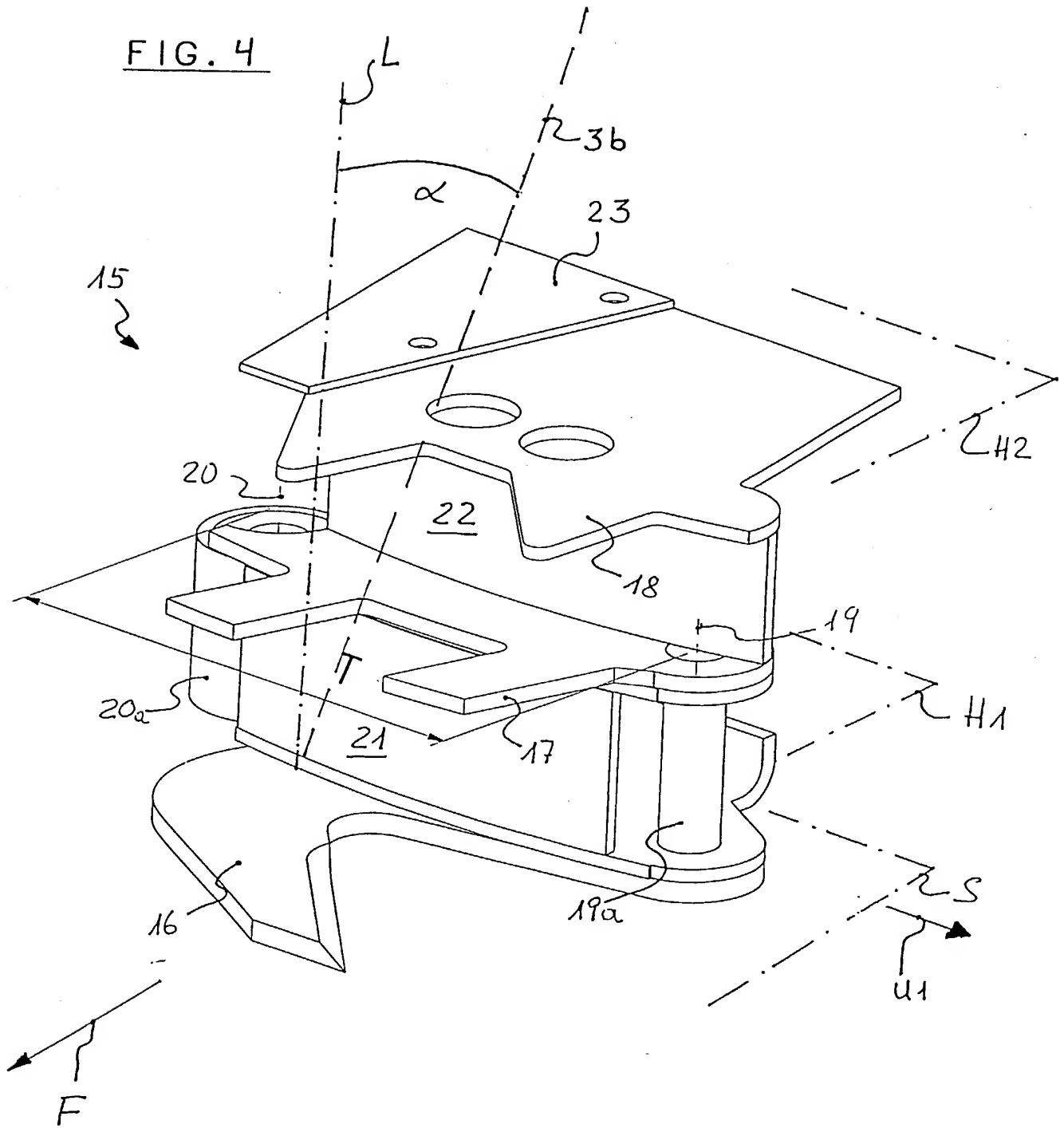
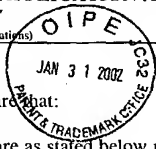


FIG. 4



1.001.2306.072903

COMBINED DECLARATION FOR PATENT APPLICATION AND POWER OF ATTORNEY <small>(Includes Reference to PCT International Applications)</small>	Attorney's Docket Number F-7257
---	---



As a below named inventor, I hereby declare that:

My residence, post office address and citizenship are as stated below next to my name,

I believe I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention entitled:

HARVESTING EQUIPMENT

the specification of which (check only one item below):

- ☐ is attached hereto.
- ☐ was filed as United States application
Serial No. _____
and was amended
on _____ (if applicable).
- ☒ was filed as PCT international application
Number PCT/EP00/06913
on July 19, 2000
and was amended under PCT Article 19
on _____ (if applicable).

I hereby state that I have reviewed and understand the contents of the above-identified specification, including the claims, as amended by any amendment referred to above.

I acknowledge the duty to disclose information which is material to the patentability of this application in accordance with Title 37, Code of Federal Regulations, §1.56(a).

I hereby claim foreign priority benefits under Title 35, United States Code, §119(a)-(d) or (f), §365(b) of any foreign application(s) for patent or inventor's certificate or of any PCT international application(s) designating at least one country other than the United States of America listed below and have also identified below any foreign application(s) for patent or inventor's certificate or any PCT international application(s) designating at least one country other than the United States of America filed by me on the same subject matter having a filing date before that of the application(s) of which priority is claimed:

PRIOR FOREIGN/PCT APPLICATION(S) AND ANY PRIORITY CLAIMS UNDER 35 U.S.C. 119:			
Country (if PCT indicate "PCT")	Application Number	Date of Filing	Priority Claimed Under 35 USC 119
Germany	199 51 636.7	October 26, 1999	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Germany	199 52 566.8	November 1, 1999	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Germany	199 47 288.2	September 30, 1999	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Germany	199 33 777.2	July 19, 1999	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Germany	199 33 778.0	July 19, 1999	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Germany	199 33 780.2	July 19, 1999	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Germany	199 51 459.3	October 26, 1999	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No

**COMBINED DECLARATION FOR PATENT APPLICATION AND
POWER OF ATTORNEY (Continued)**
(Includes Reference to PCT International Applications)

Attorney's Docket Number

F-7257

I hereby claim the benefit under Title 35, United States Code, §120 of any United States application(s) or PCT international application(s) designating the United States of America that is/are listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in that/those prior application(s) in the manner provided by the first paragraph of Title 35, United States Code, §112, I acknowledge the duty to disclose material information as defined in Title 37, Code of Federal Regulations, §1.56(a) which occurred between the filing date of the prior application(s) and the national or PCT international filing date of this application:

POWER OF ATTORNEY: As a named inventor, I hereby appoint the following attorney(s) and/or agent(s) to prosecute this application and transact all business in the Patent and Trademark Office connected therewith.

C. Bruce Hamburg	Reg. No. <u>22,389</u>
Frank J. Jordan	Reg. No. <u>20,456</u>
Herbert F. Ruschmann	Reg. No. <u>35,341</u>
Jacqueline M. Steady	Reg. No. <u>44,354</u>
Marvin Turken	Reg. No. <u>18,330</u>
Alfred D'Andrea	Reg. No. <u>27,752</u>
Lawrence I. Wechsler	Reg. No. <u>36,049</u>

Send Correspondence To: Jordan and Hamburg LLP
122 East 42nd Street
New York, New York 10168

Direct Telephone Calls to:
Frank J. Jordan
(212) 986-2340

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application or any patent issuing thereon.

Full Name of First or sole Inventor	Inventor's Signature	Date
Bernard KRONE	<i>Bernard Krone</i>	<u>07.01.2002</u>
Residence	Citizenship	
<u>Spelle, Germany DEX</u>	Germany	
Post Office Address		
Bernard-Krone-Strasse 11		
48480 Spelle, Germany		

Full Name of Second Inventor	Inventor's Signature	Date
Wilhelm AHLER	<i>Wilhelm Ahler</i>	<u>08.01.2002</u>
Residence	Citizenship	
<u>Stadtlahn, Germany DEX</u>	Germany	
Post Office Address		
Alter Dyk 40		
48703 Stadtlahn, Germany		

Full Name of Third Inventor	Inventor's Signature	Date
Alfons KELLER	<i>Alfons Keller</i>	16.01.2002
Residence	Citizenship	
Mettingen, Germany <i>DEX</i>	Germany	
Post Office Address		
Brookstrasse 134 49497 Mettingen, Germany		